

Histopathological Analysis of Irritation Fibroma Occurred in Young Male Gingiva: A Case Report

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Irritation fibroma is a reactive hyperplastic lesion caused by chronic stimuli with low intensity in the oral cavity. Irritation fibroma is common in middle-aged females but it may also occur at any age and sex. Clinical characteristics of irritation fibroma are similar to other reactive lesions or benign tumors, therefore, histological examination is essential to make an accurate diagnosis. This case report presents two cases of irritation fibroma occurred on the gingiva in young males. Two male patients in their 20s and 30s of age visited the clinic for the evaluation and treatment of painless gingival overgrowth in the anterior region. Clinically, the lesions were well-defined and firm, with similar color and texture to the adjacent normal gingiva. Excisional biopsy under local anesthesia was conducted with a scalpel, and the lesions were completely removed. Histopathologically, connective tissue consisting of dense collagen bundles, proliferation of fibroblasts and minor infiltrated inflammatory cells were observed. Based on the clinical and histopathological findings, the diagnosis of irritation fibroma was confirmed in both cases.

Key Words: Biopsy; Fibroma; Histology; Pathology, oral

Introduction

Irritation fibroma, also known as traumatic fibroma or focal fibrous hyperplasia, is a reactive hyperplasia of fibrous connective tissue in response to chronic stimuli¹⁾. The most common location is buccal mucosa along the occlusal plane due to cheek biting but

it may also occur in the tongue, lips and gingiva²⁾. Clinically, the lesion appears a sessile or pedunculated nodule with a smooth surface and similar color surrounded by normal mucosa. It is asymptomatic and grows slowly in size usually not exceeding 1.5 cm in diameter³⁾. Since the clinical features of irritation fibroma are similar with other reactive lesion or

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Received for publication April 20, 2020; Returned after revision June 3, 2020; Accepted for publication June 12, 2020

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true neoplasm, histopathological examination is essential to make an accurate diagnosis⁴⁾.

Histopathologically, the connective tissue filled with dense collagen bundles with or without the infiltration of inflammatory cells is a major feature of irritation fibroma. Distinguishable features of irritation fibroma include osteoid deposition and bone aggregates in peripheral ossifying fibroma, proliferation of capillary blood vessels in pyogenic granuloma, and scattered multinucleated giant cells in peripheral giant cell granuloma^{1,5)}. In addition, increased cellularity due to proliferation of fibroblast is observed in benign neoplasm such as fibromatosis⁶⁾.

Previous studies have reported that irritation fibroma appears to be the highest percentage among oral hyperplastic lesions, ranging from 57% to 72%⁷⁻⁹⁾. In spite of its high incidence rate, case reports of irritation fibroma are not sufficient, especially in young male population. This report presents two cases of irritation fibroma that occurred on gingiva of young male patients.

Case Report

Each patient signed an informed consent prior to surgical treatment. All treatment procedures have been proceeded corresponding to the Declaration of Helsinki.

1. Case 1

A 20-year-old male patient visited the clinic with a chief complaint of gingival overgrowth on upper left lateral incisor region (Fig. 1A, B). The patient recognized the lesion about 5 years ago. A painless lesion grew gradually in size and has not changed for the last two years. The patient smoked about 20 cigarettes every day, however, he was systemically healthy with no history of trauma on the upper anterior region. Clinical examination revealed a well-defined, solitary and firm gingival mass on the labial side of the upper left lateral incisor along the marginal gingiva, with approximately 6 mm in mesio-distal width and 4 mm in corono-apical length. The color and surface texture of the lesion was same as the surrounding normal gingiva, including the brown-

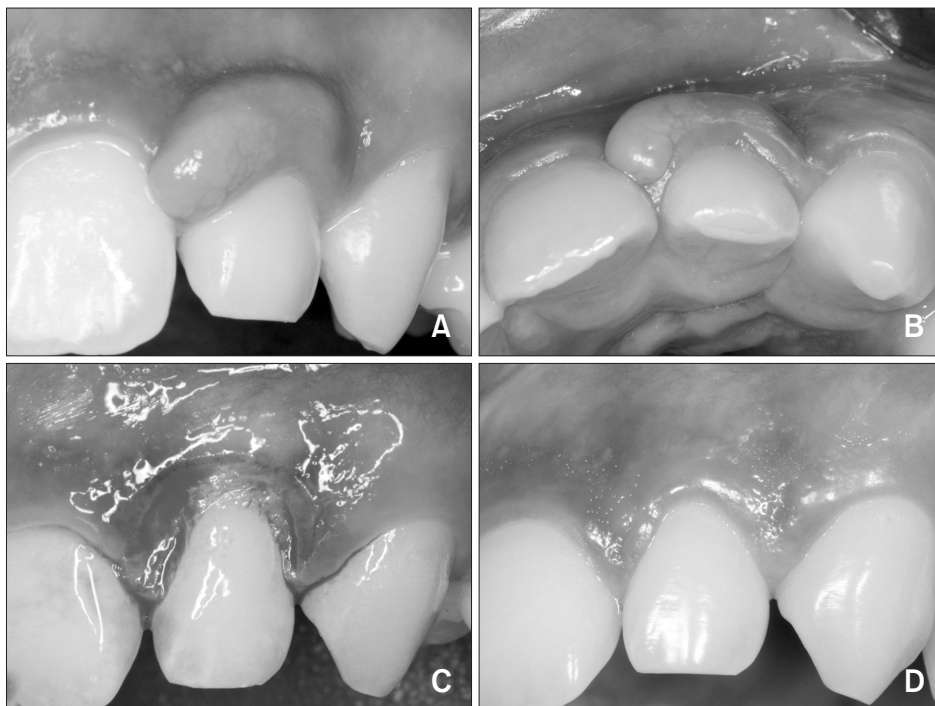


Fig. 1. Clinical photographs of case 1. (A, B) Preoperative lesion seen from labial and incisal sides. (C) Surgical site immediately after the excision. (D) Surgical site at 1-year post-surgery.

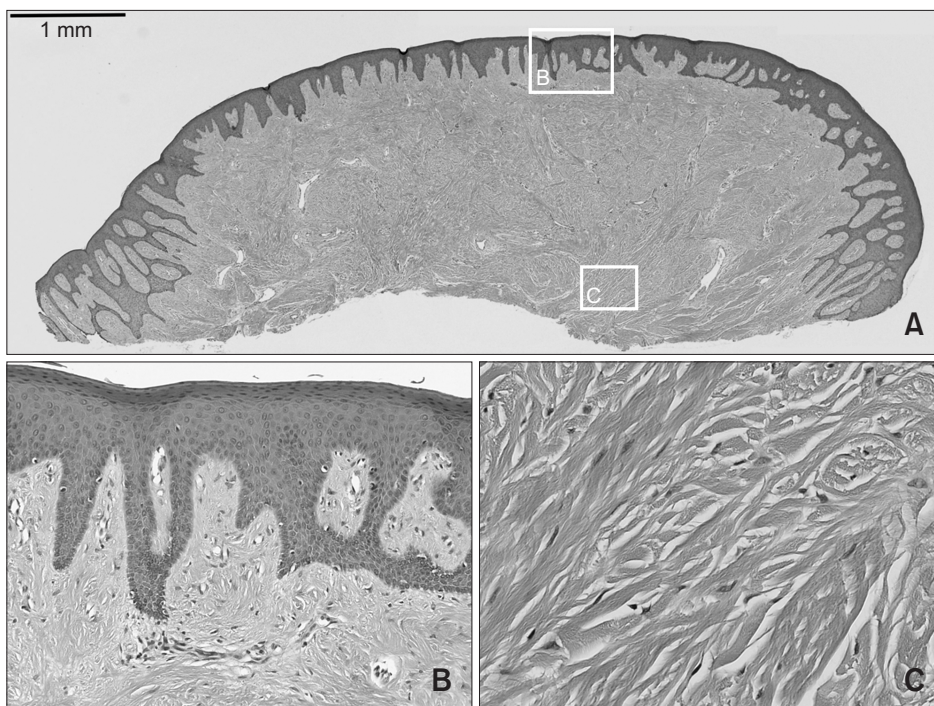


Fig. 2. Histopathology under hematoxyline-eosin staining of case 1. (A) A nodular mass consisting of stratified squamous epithelium and dense fibrous connective tissue ($\times 40$). (B) Elongated rete pegs underneath the epithelium and excessive melanin deposition on the basal cell layer ($\times 200$). (C) Dense collagen bundles and spindle-shaped inactive fibroblasts ($\times 400$).

ish gingival pigmentation on the adjacent attached gingiva. There was no tenderness to gingival palpation and tooth mobility. A radiographic examination including cone beam computed tomography did not show any lesion involving tooth or bone.

The lesion was excised completely under local anesthesia and the gingival margin was trimmed with a diamond bur (Fig. 1C). The healing was uneventful and no recurrence was found after 1-year follow-up (Fig. 1D). The tissue sample of the lesion was sent for a histological examination. Histopathologically, a nodular mass consisting of fibrous connective tissue with stratified squamous epithelium was observed (Fig. 2A). Elongated rete pegs were identified in the epithelium with increased melanin pigmentation in the basal cell layer (Fig. 2B). There were small blood vessels and dense collagen fibers in connective tissue without infiltration of inflammatory cells (Fig. 2C). Based on these histopathological findings, a diagnosis of irritation fibroma was derived.

2. Case 2

A 33-year-old male patient was referred from the

department of oral medicine for painless gingival growth on lower left canine area. The patient first recognized the lesion about 3 years ago and the lesion had grown slowly about a year ago. There was no contributing factor (*i.e.*, trauma) from past medical and dental history. Clinical examination revealed a sessile, firm and solitary gingival mass on the labial surface of the lower left canine, measuring 15 mm in mesio-distal width and 8 mm in corono-apical length (Fig. 3A, B). The lesion was extended mesio-distally from the middle of left lower lateral incisor to the mesial surface of lower left first premolar and apico-coronally from marginal gingiva of canine to half of the canine crown. There was a spacing between the canine and the first premolar, covered by the lesion but there was also a spacing on the same area of the contralateral side. The color of the lesion was paler than the adjacent gingiva, and the most prominent area was reddish and slightly eroded. In the radiographic examination, no abnormality was found in bone or tooth associated with the lesion.

Excisional biopsy was carried out under local anesthesia (Fig. 3C, D). A histopathological examination

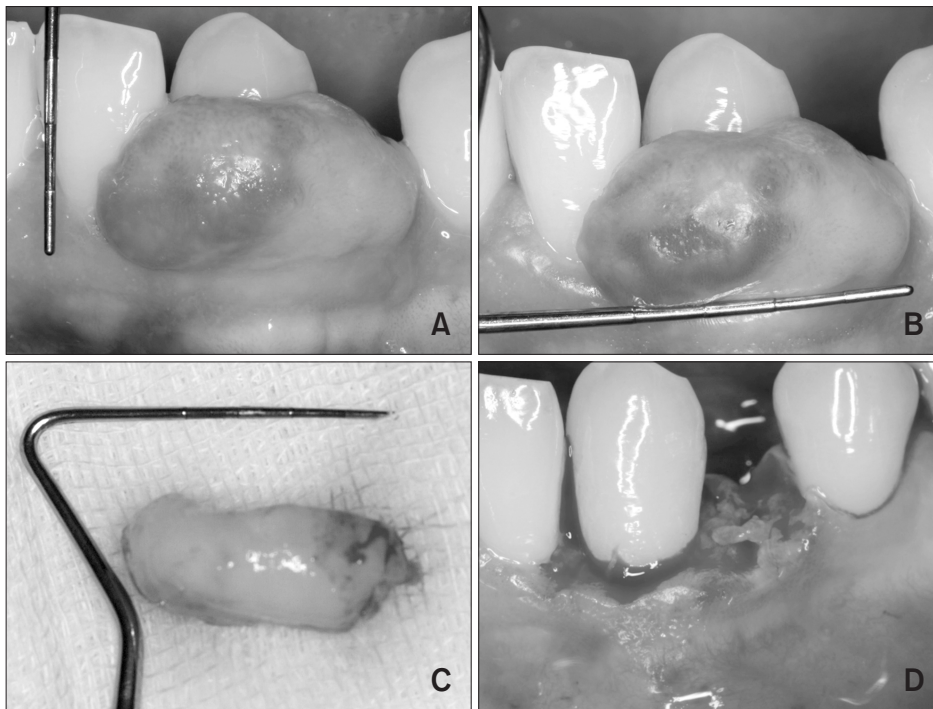


Fig. 3. Clinical photographs of case 2. (A, B) Preoperative lesion measuring 15 mm in mesio-distal width and 8 mm in corono-apical length. (C) Excised lesion. (D) Surgical site immediately after excision.

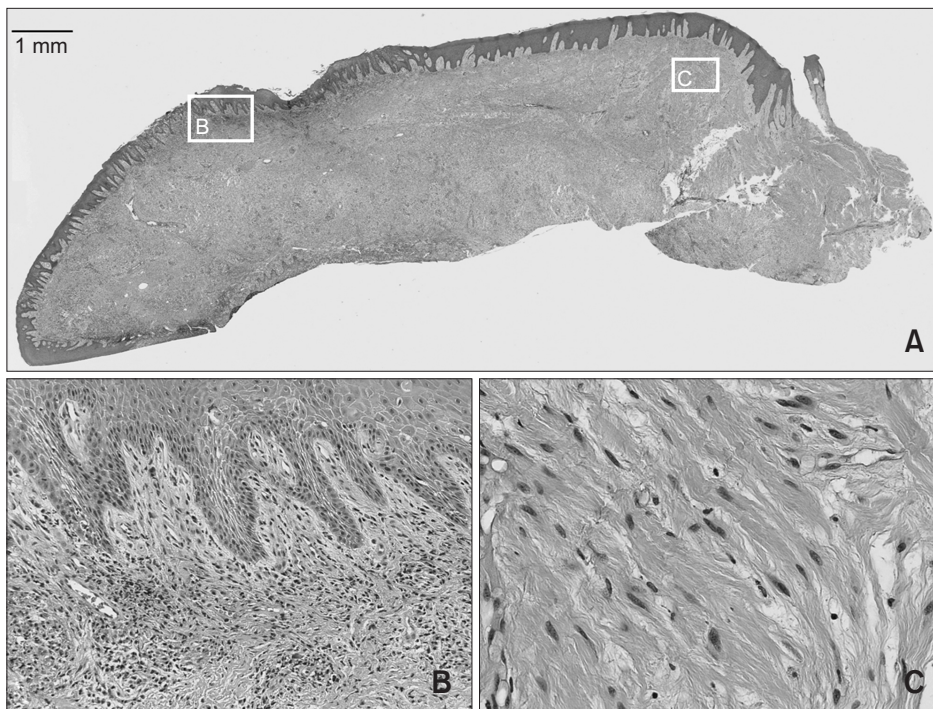


Fig. 4. Histopathology under hematoxyline-eosin staining of case 2. (A) A sessile mass with partially eroded epithelium and dense connective tissue (×40). (B) Infiltration of inflammatory cells and elongated rete pegs beneath the epithelium (×200). (C) Dense collagen fibers and fibroblasts with basophilic cytoplasm (×400).

showed a nodular mass of dense fibrous connective tissue covered by stratified squamous epithelium (Fig. 4A). Inflammatory cells were scattered beneath the epithelium especially at the partially epithelial erosion area (Fig. 4B). Within the connective tissue,

capillary blood vessels and dense collagen fibers were observed (Fig. 4C). Based on histopathological findings, it was diagnosed as irritation fibroma.

Discussion

This report presented two cases of irritation fibroma that occurred on gingiva in males with the age of 20s to 30s. The lesions were located at the marginal gingiva, including sulcus on the labial side. The patients noticed a gradual change in size and did not complain of pain or discomfort. Clinically, a sessile and firm gingival mass were observed. Case 1 showed similar color and texture to adjacent gingiva, while case 2 showed reddish and pale color and gingival erosion in the most prominent area. The lesions were completely excised with a scalpel under local anesthesia and the specimens were sent for biopsy. Based on histopathological findings and clinical signs, the final diagnoses were irritation fibroma for both cases.

Irritation fibroma is more common in females aged fourth to sixth decades of life¹⁾. A previous study investigating 193 cases of irritation fibroma in Brazil reported that more than two-thirds of the patients were female with mean age of 41.4 years²⁾. Similarly, a retrospective study from India reported that 31 of 45 irritation fibroma lesions occurred in female with mean age of 37.3 years¹⁰⁾. The higher prevalence of females than males might be attributed by female hormones, like other types of reactive lesions^{9,11,12)}. However, irritation fibroma can occur in any age and sex, as the two patients in the present report were males in their early 20s and 30s, respectively.

Diagnosis of irritation fibroma requires differential diagnosis with other lesions which have similar clinical features such as peripheral ossifying fibroma, pyogenic granuloma and peripheral giant cell granuloma. Peripheral ossifying fibromas include calcified bone trabecula within the lesion which can be seen radiopaque lesions in a radiograph¹²⁾. Pyogenic granulomas, of which the main features of highly vascular proliferation, are distinguishable in bleeding tendency¹¹⁾. Peripheral giant cell granulomas can accompany alveolar bone resorption and proliferation of multinucleated giant cells are observed histo-

logically¹³⁾.

Microscopic features of the irritation fibroma include dense and collagenized connective tissue and proliferation of fibroblast. In case 1, the collagen bundles were more dense and small, spindle-shaped inactive fibroblasts were observed. On the other hand, in case 2, collagen bundles were relatively loose, and large fibroblasts with basophilic cytoplasm were observed. These differences might be due to the fact that case 1 lesion has not changed in size over the past two years, while case 2 has grown in size for a year before the treatment. Usually, rete pegs underneath the epithelium shown in irritation fibroma undergo atrophy due to underlying fibrous mass¹⁾. However, in both cases of this report, the rete pegs were elongated, especially in case 1. This might be a response of the lesion towards various mechanical stresses caused by chewing or speaking for a long time¹⁴⁾.

Irritation fibroma is usually treated by complete surgical excision of the lesion and removal of the causative factors. Recently, advantages of excising soft tissue lesions using lasers have emerged. Compared with the conventional scalpel, the laser has the advantages of less intraoperative bleeding, less postoperative pain and swelling, and no need for suture¹⁵⁾. Among many types of lasers, a diode laser is compact, easy to use, and inexpensive, which makes it advantageous for the removal of small soft tissue lesions. Amaral et al.¹⁶⁾ reported that the diode laser was superior to the conventional scalpel in the treatment of fibrous hyperplasia in terms of shortening of treatment time and postoperative pain reduction.

Recurrence of irritation fibroma is rare if the etiological local irritants are completely removed. The cause of irritation fibroma can be chronic stimuli with low intensity, such as habitual cheek or tongue biting, excessively extended flanges of dentures, ill-fitting restorations and dental plaque or calculus⁹⁾. In the present report, since there was not any other mechanical trauma occurred in the oral cavity in

both patients, a dental plaque in the sulcus or adjacent teeth might be a possible etiology of the lesions. In case 1, recurrence of the lesion did not occur for 1-year after surgery and the oral hygiene of the patient was well maintained. However, the follow-up of case 2 was lost, so the recurrence could not be identified, which is considered to be a limitation of this report.

This case report presented irritation fibroma that occurred in the gingiva, which is not common in young male patients. Complete excision and histopathological analysis of the lesion is necessary for the differential diagnosis of irritation fibroma with other reactive lesions or slowly growing true neoplasms.

Conflict of Interest

No potential conflict of interest relevant to this article was reported.

Acknowledgement

This work was supported by the National Research Foundation of Korea (NRF) grant funded by the Korea government (MSIT) (No. NRF-2019R1C1C1006622).

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